

That which is claimed is:

1. An isolated nucleic acid encoding a polypeptide selected from the group consisting of:

- 5 (a) a Monarch-1 polypeptide;
(b) a CATERPILLER 11.2 polypeptide;
(c) a CATERPILLER 11.3 polypeptide;
(d) a CATERPILLER 16.1 polypeptide;
(e) a CATERPILLER 16.2 polypeptide;
10 (f) a CIAS1 polypeptide comprising the amino acids encoded by exon 6 and lacking the amino acids encoded by exon 4; and
(g) a functional fragment of any of (a) to (f).

2. An isolated nucleic acid encoding a functional fragment of a
15 CIAS1 polypeptide.

3. The isolated nucleic acid of Claim 1 or Claim 2, wherein said polypeptide comprises a nucleotide-binding domain and a leucine rich repeat.

20 4. The isolated nucleic acid of any of Claims 1-3, wherein said isolated nucleic acid comprises a nucleotide sequence selected from the group consisting of:

- (a) the nucleotide sequence of SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7, SEQ ID NO:13, SEQ ID NO:17, SEQ ID NO:19, SEQ ID NO:23, SEQ ID NO:27, SEQ ID NO:33 or SEQ ID NO:148;
25 (b) a nucleotide sequence consisting essentially of a fragment of the nucleotide sequence of SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7, SEQ ID NO:13, SEQ ID NO:17, SEQ ID NO:19, SEQ ID NO:23, SEQ ID NO:27, SEQ ID NO:33 or SEQ ID NO:148, wherein said fragment encodes a functional
30 polypeptide;

- (c) a nucleotide sequence that hybridizes to the complement of the nucleotide sequences of (a) or (b) under stringent hybridization conditions and encodes a functional polypeptide;
- (d) a nucleotide sequence that differs from the nucleotide sequences of (a), (b) and (c) above due to the degeneracy of the genetic code.

5. The isolated nucleic acid of any of Claims 1, 3 or 4 encoding the polypeptide of SEQ ID NO:2 or a functional fragment thereof.

6. The isolated nucleic acid of any of Claims 1, 3 or 4 encoding the polypeptide of SEQ ID NO:4 or a functional fragment thereof.

7. The isolated nucleic acid of any of Claims 1, 3 or 4 encoding the polypeptide of SEQ ID NO:6 or a functional fragment thereof.

8. The isolated nucleic acid of any of Claims 1, 3 or 4 encoding the polypeptide of SEQ ID NO:8 or a functional fragment thereof.

9. The isolated nucleic acid of any of Claims 1, 3 or 4 encoding the polypeptide of SEQ ID NO:14 or a functional fragment thereof.

10. The isolated nucleic acid of any of Claims 1, 3 or 4 encoding the polypeptide of SEQ ID NO:18 or a functional fragment thereof.

11. The isolated nucleic acid of any of Claims 1, 3 or 4 encoding the polypeptide of SEQ ID NO:20 or a functional fragment thereof.

12. The isolated nucleic acid of any of Claims 1, 3 or 4 encoding the polypeptide of SEQ ID NO:24 or a functional fragment thereof.

13. The isolated nucleic acid of any of Claims 1, 3 or 4 encoding the polypeptide of SEQ ID NO:28 or a functional fragment thereof.

14. The isolated nucleic acid of any of Claims 2- 4 encoding the polypeptide of SEQ ID NO:34 or a functional fragment thereof.

5 15. The isolated nucleic acid of any of Claims 2- 4 encoding the polypeptide of SEQ ID NO:149 or a functional fragment thereof.

16. The isolated nucleic acid of any of Claims 1-4, wherein said isolated nucleic acid comprises a nucleotide sequence that encodes a
10 functional polypeptide that has at least about 80% amino acid sequence identity to an amino acid sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, SEQ ID NO:14, SEQ ID NO:18, SEQ ID NO:20, SEQ ID NO:24, SEQ ID NO:28, SEQ ID NO:34, SEQ ID NO:149 and a functional fragment of any of the foregoing.

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17. An isolated polypeptide encoded by the isolated nucleic acid of any of Claims 1-16.

18. The isolated polypeptide of Claim 17, wherein said isolated
20 polypeptide consists essentially of an amino acid sequence selected from the group consisting of the amino acid sequence of SEQ ID NO:2, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, SEQ ID NO:14, SEQ ID NO:18, SEQ ID NO:20, SEQ ID NO:24, SEQ ID NO:28, SEQ ID NO:34 and SEQ ID NO:149.

19. The isolated polypeptide of Claim 17, wherein said isolated
25 polypeptide consists essentially of a functional fragment of a polypeptide having an amino acid sequence selected from the group consisting of the amino acid sequence of SEQ ID NO:2, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, SEQ ID NO:14, SEQ ID NO:18, SEQ ID NO:20, SEQ ID NO:24, SEQ
30 ID NO:28, SEQ ID NO:34, and SEQ ID NO:149.

20. A cell comprising the isolated nucleic acid of any of Claims 1-16.

21. A cell comprising the isolated polypeptide of any of Claims 17-
19.

22. A fusion protein comprising the polypeptide of any of Claims 17-
5 19.

23. An isolated nucleic acid encoding the fusion protein of Claim 22.

24. An antibody that specifically binds to the polypeptide of any of
10 Claims 16-18.

25. The antibody of Claim 24, wherein the antibody is a monoclonal
antibody.

15 26. The antibody of Claim 24 or Claim 25, wherein the antibody is
attached to a detectable moiety.

27. A method of modulating the cellular activity of a polypeptide
selected from the group consisting of Monarch-1, CIAS1, CATERPILLER
20 11.2, CATERPILLER 11.3, CATERPILLER 16.1, CATERPILLER 16.2, and a
functional fragment thereof, comprising introducing into a cell a compound
that modulates the activity of the polypeptide in an amount effective to
modulate the activity of the polypeptide in the cell.

25 28. The method of Claim 27, wherein the compound is an isolated
nucleic acid encoding the polypeptide.

29. The method of Claim 27, wherein the compound is selected
from the group consisting of an antisense oligonucleotide and a siRNA that
30 targets the nucleic acid encoding the polypeptide.

30. The method of Claim 27, wherein the compound is an antibody that binds to the polypeptide.

31. A method of modulating cellular inflammatory responses,
5 comprising introducing into a cell a compound that modulates the activity of a polypeptide selected from the group consisting of Monarch-1, CIAS1, CATERPILLER 11.2, CATERPILLER 11.3, CATERPILLER 16.1, CATERPILLER 16.2, and a functional fragment thereof, said compound introduced in an amount effective to modulate cellular inflammatory
10 responses.

32. The method of Claim 31, wherein the compound is an isolated nucleic acid encoding the polypeptide.

15 33. The method of Claim 31, wherein the compound is selected from the group consisting of an antisense oligonucleotide and a siRNA that targets the nucleic acid encoding the polypeptide.

34. The method of Claim 31, wherein the compound is an antibody
20 that binds to the polypeptide.

35. A method of modulating apoptosis, comprising introducing into a cell a compound that modulates the activity of a polypeptide selected from the group consisting of Monarch-1, CIAS1, CATERPILLER 11.2, CATERPILLER
25 11.3, CATERPILLER 16.1, CATERPILLER 16.2, and a functional fragment thereof, said compound introduced in an amount effective to modulate apoptosis.

36. The method of Claim 35, wherein the compound is an isolated
30 nucleic acid encoding the polypeptide.

37. The method of Claim 35, wherein the compound is selected from the group consisting of an antisense oligonucleotide and a siRNA that targets the nucleic acid encoding the polypeptide.

5 38. The method of Claim 35, wherein the compound is an antibody that binds to the polypeptide.

39. A method of modulating Toll-like receptor activity, comprising introducing into a cell a compound that modulates the activity of a polypeptide
10 selected from the group consisting of Monarch-1, CIAS1, CATERPILLER 11.2, CATERPILLER 11.3, CATERPILLER 16.1, CATERPILLER 16.2, and a functional fragment thereof, said compound introduced in an amount effective to modulate Toll-like receptor activity.

15 40. The method of Claim 39, wherein the compound is an isolated nucleic acid encoding the polypeptide.

41. The method of Claim 39, wherein the compound is selected from the group consisting of an antisense oligonucleotide and a siRNA that
20 targets the nucleic acid encoding the polypeptide.

42. The method of Claim 39, wherein the compound is an antibody that binds to the polypeptide.

25 43. The method according to any of Claims 27-42, wherein the cell is a cultured cell.

44. The method according to any of Claims 27-42, wherein the cell is a cell *in vivo*.

30 45. A method of identifying a compound that binds to a polypeptide selected from the group consisting of Monarch-1, CATERPILLER 11.2,

CATERPILLER 11.3, CATERPILLER 16.1, CATERPILLER 16.2, and a functional fragment of any of the foregoing, comprising:

- contacting the polypeptide with a test compound under conditions whereby binding between the polypeptide and the test compound can be
- 5 detected; and
- detecting binding between the polypeptide and the test compound.

46. A method of identifying a compound that modulates the activity of a polypeptide selected from the group consisting of Monarch-1,

10 CATERPILLER 11.2, CATERPILLER 11.3, CATERPILLER 16.1, CATERPILLER 16.2, and a functional fragment of any of the foregoing, comprising:

- contacting the polypeptide with a test compound under conditions whereby modulation of the activity of the polypeptide can be detected; and
- 15 detecting modulation of the activity of the polypeptide.

47. A method of identifying a compound that can modulate inflammatory responses, comprising:

- contacting a polypeptide selected from the group consisting of
- 20 Monarch-1, CIAS1, CATERPILLER 11.2, CATERPILLER 11.3, CATERPILLER 16.1, CATERPILLER 16.2 and a functional fragment of any of the foregoing with a test compound under conditions whereby modulation of the activity of the polypeptide can be detected; and
- detecting modulation of the activity of the polypeptide, thereby
- 25 identifying a compound that can modulate inflammatory responses.

48. A method of identifying a compound that can modulate apoptosis, comprising:

- contacting a polypeptide selected from the group consisting of
- 30 Monarch-1, CIAS1, CATERPILLER 11.2, CATERPILLER 11.3, CATERPILLER 16.1, CATERPILLER 16.2 and a functional fragment of any of the foregoing with a test compound under conditions whereby modulation of the activity of the polypeptide can be detected; and

detecting modulation of the activity of the polypeptide, thereby identifying a compound that can modulate apoptosis.

49. A method of identifying a compound that can modulate the Toll-like receptor pathway, comprising:

contacting a polypeptide selected from the group consisting of Monarch-1, CIAS1, CATERPILLER 11.2, CATERPILLER 11.3, CATERPILLER 16.1, CATERPILLER 16.2 and a functional fragment of any of the foregoing with a test compound under conditions whereby modulation of the activity of the polypeptide can be detected; and

detecting modulation of the activity of the polypeptide, thereby identifying a compound that can modulate the Toll-like receptor pathway.

50. The method of any of Claims 45-49, wherein the method is carried out in a cell comprising the polypeptide.

51. The method of Claim 50, wherein the cell comprises an isolated nucleic acid comprising a nucleotide sequence encoding the polypeptide.

52. The method of Claim 51, wherein the cell is stably transformed with the isolated nucleic acid.

53. The method of any of Claims 45-49, wherein the method is carried out as a cell-free assay.

54. The method of any of Claims 45-49, wherein the method is carried out in a transgenic non-human mammal comprising an isolated nucleic acid comprising a nucleotide sequence encoding the polypeptide.